PL-3

LIGHT-EMITTING CONJUGATED POLYMERS AND OLIGOMERS FOR OPTOELECTRONICS

I. F. Perepichka

Shaanxi Institute of Flexible Electronics, Northwestern Polytechnical University, Xi'an 710072, China. E-mail: i.perepichka@nwpu.edu.cn; i.perepichka@bangor.ac.uk

Abstract. Following many years of intense academic research, organic semiconductors have began to impact on commercial sector (light-emitting devices, field-effect transistors, organic solar cells, memory and logic devices, sensors and biosensors, electro- and photochromics, etc.).

The lecture highlights our studies on electronics and photonics of fluorene-based and related π-conjugated oligomers and polymers: from design and synthesis to physical studies and materials applications in electronic devices. I will discuss the following aspects in these researches:

(1) star-shaped conjugated architectures: toward increased dimensionality of conjugated systems; (2) dibenzothiophene-*S*,*S*-dioxides and 4,5-diazafluorenes as electron-deficient heteroanalogs for electron transport and charge transfer materials;

(3) dual emission in conjugated systems and its use for broadening electroluminescence toward single polymer white-light OLEDs;

(4) conjugated oligomers / polymers as fluorescent sensors for metal cations;

(5) tuning the electronic energy levels and the emission color through side-chain functionalization.